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Pillsbury Madison & Sutro LLP  
Intellectual Property Group  
East Tower, Ninth Floor  
1100 New York Avenue, N.W.  
Washington, DC 20005-3918

EXAMINER

LI, SHI K

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 04/21/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/755,136

Applicant(s)

WAY, WINSTON

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2001 and 13 November 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-19 and 21-23 is/are rejected.
- 7) ☒ Claim(s) 10 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

DETAILED ACTION

*Drawings*

1. FIG. 1, FIG. 2, FIG. 3(a), FIG. 3(b), FIG. 4, FIG. 5, FIG. 6, FIG. 7(a), FIG. 7(b), FIG. 7(c), FIG. 7(d) and FIG. 8 are objected to under 37 CFR 1.84(o) because there are no descriptive legends for the boxes. For example, the box 22 of FIG. 1 should contain the legend "optical receiver". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 5 recites the limitation "the first input channel" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3 and 13-14 are rejected under 35 U.S.C. 102(a) as being anticipated by Bannister et al. (J. Bannister et al., "How Many Wavelengths Do We Really Need? A Study of the Performance Limits of Packet Over Wavelengths", SPIE Optical Network Magazine, April 2000).

Bannister et al. discloses a packet over wavelength (POW) network architecture.

Regarding claims 1 and 13, Bannister et al. shows in FIG. 2 the node architecture which includes an optical packet processing unit for receiving packets on an input WDM signal, a wavelength selective crossconnect for transmitting the packets. Bannister et al. teaches in page 3, left col., first paragraph the identification of an unused wavelength (reserved wavelength buffer).

Regarding claim 2, Bannister et al. teaches in FIG. 6 the use of reservation protocol to reserve wavelength.

Regarding claims 3 and 14, the architecture of Bannister et al. handles a plurality of packets.

7. Claims 1, 4-9 and 15-19 are rejected under 35 U.S.C. 102(a) as being anticipated by Blumenthal et al. (D. Blumenthal et al., "All-Optical Label Swapping with Wavelength Conversion for WDM-IP Networks with Subcarrier Multiplexed Addressing", IEEE Photonics Technology Letters, Vol. 11, No. 11, November 1999).

Blumenthal et al. discloses in FIG. 2 a setup for label swapping. FIG. 2 includes a splitter for splitting the received optical signal into two branches, a receiver for receiving the label

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information in one of the branches, a IP tag processor for modifying the label information, and a 1x2 combiner for re-combining the modified label information with the payload and transmitting the packet. Blumenthal et al. includes  $\lambda_{\text{new}}$  as a reserved wavelength buffer.

Regarding claims 5 and 15, Blumenthal et al. uses channels of different frequencies (wavelengths) for carrying the label information and the payload.

Regarding claims 6-8 and 16-18, Blumenthal et al. includes a local oscillator (16.431 GHz RF Signal Generator) and a Mach-Zehnder modulator.

Regarding claims 9 and 19, Blumenthal et al. includes in FIG. 2 a fast wavelength tunable laser and SOA.

8. Claims 1, 12, 13 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiragaki (U.S. Patent 5,663,820).

Shiragaki discloses in FIG. 1 an optical network. FIG. 2 shows the details of an internal switch of a node. A node, e.g., node B, in the network receives signals from input fiber into demultiplexers 16 and transmits the outgoing signal via WDM 21 to other nodes. It converts the OAM channels to electrical signal. If necessary, it also converts the payload into electrical signal via the Optical Line Terminator and Multiplexer (OLTM) 33. The electrical signals are converted to optical signals by the E/O converters 20 and OLTM 32.

9. Claim 23 is rejected under 35 U.S.C. 102(a) as being anticipated by Blumenthal et al. (D. Blumenthal et al., "All-Optical Label Swapping with Wavelength Conversion for WDM-IP Networks with Subcarrier Multiplexed Addressing", IEEE Photonics Technology Letters, Vol. 11, No. 11, November 1999).

Blumenthal et al. discloses in FIG. 2 a setup for label swapping. FIG. 2 includes a splitter for splitting the received optical signal into two branches, a receiver for receiving the label information in one of the branches, a IP tag processor for modifying the label information, and a 1x2 combiner for re-combining the modified label information with the payload and transmitting the packet.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 11, 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (U.S. Patent 6,271,946 B1) in view of Frigo et al. (U.S. Patent 6,466,342 B1).

Chang et al. discloses in FIG. 17 a label swapping arrangement. In FIG. 17, an input optical signal with a plurality of channels is received into demultiplexer 1602, packets are received, processed and transmitted via the E/O converter 1714 into the output optical waveguide. The payload and the label information are converted into electrical signal via the timing recovery and decision 1712 and the demodulator 1691. The difference between Chang et al. and the claimed inventions is that Chang does not extract the carrier. Frigo et al. teaches in FIG. 2a the reuse of the carrier from the incoming signal. As illustrated in FIG. 4, the signal originally carried by the carrier is erased and the carrier can be reused and modulated by the going packets. One of ordinary skill in the art would have been motivated to combine the teachings of Frigo with the label swapping arrangement of Chang et al. because reusing the carrier

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ensures that it has the same wavelength along the transmission network, minimizes the interference with the other channels and makes the arrangement wavelength independent and, therefore, simplifies maintenance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to extra the carrier and use it as the light source for the modulation of the outgoing packet, as taught by Frigo, in the label swapping arrangement of Chang et al. because this approach ensures the carrier has the correct wavelength, minimizes the interference with the other channels and makes the arrangement wavelength independent.

*Allowable Subject Matter*

12. Claims 10 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9314 for regular communications and 703 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

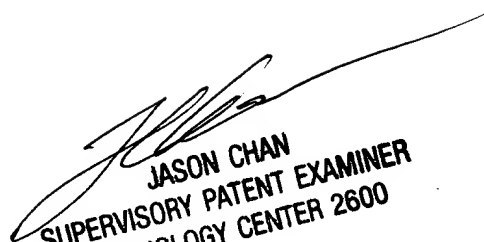
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April 11, 2003



JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600